

### **REMARKS**

In response to the Non-Final Office Action dated May 9, 2011, the Applicants respectfully request reconsideration of the claims and of the Examiner's rejection of the claims in view of the following remarks and the foregoing claim amendments. By this response, claims 1-48 and 50-53 are currently pending. Claims 1-48 and 50-53 have been rejected. Claims 36-37 have been cancelled. Claims 1-2, 4, 6-7, 10-13, 17-18, 21-23, 27-32 and 44-53 are currently amended.

#### **Telephone Interview with the Examiner**

On August 17, 2011, Applicants discussed various rejections in the May 9, 2011 Office Action in a telephone conference with the Examiner. The Examiner converted the claim objections to Claims 1, 6 and 32 from an objection to a suggestion. Furthermore, the Examiner withdrew its 35 U.S.C. §112 rejections to Claim 38-39.

The Examiner explained that dependent Claims 36-37, which depend from independent Claim 32, are indefinite because they do no more than claim the laser ablation shot file which is inherent in the "treatment plan" of Claim 32. According to the Examiner, a "treatment plan" is defined by the Applicants as a laser ablation shot file throughout the entire patent application. Furthermore, Claim 37 merely defines the term "laser ablation shot file."

The Examiner explained that Claims 44-53, which depend from independent Claim 32, are indefinite because they do not add any further structure to the computer and display means described in Claim 32. The Examiner stated that, in Claims 44-53, the Applicants are merely reclaiming the display with a different use. However, the Examiner concedes that amending the claims to include programming by the computer or display means would overcome the indefiniteness rejections to the claims.

#### **Claim Objections**

The Examiner has objected to Claims 1, 6 and 32 because of the informality that the preamble does not recite that the method, system, or algorithm is for the selection of a "photoablative" treatment plan. In the telephone interview of August 17, 2011, the Examiner converted this objection to a suggestion. The Applicants have not amended the claims in response to the suggestion. As such, Claims 1, 6 and 32 are in a condition for allowance.

**Claim Rejections under 35 U.S.C. §112, Claims 1-6, 9-31, 36-39, 44-53**

**A. Enablement Rejections**

The Examiner has rejected claims 26-31 as failing to meet the enablement requirements of 35 U.S.C. §112. The Applicants respectfully traverse these rejections. The Applicants request the Examiner reconsider and withdraw these rejections in view of the foregoing claim amendments and the reasons stated below.

Enablement is satisfied under §112 when an applicant describes an invention in a manner that permits one of ordinary skill in the art to practice it, without undue experimentation. (MPEP 2164.04). Importantly, the question of enablement is one of predictability in view of what is known in the art.

The Examiner has taken the position that the Applicants do not provide any details related to non-customized treatment plans. The Applicants respectfully disagree. Dependent Claim 26 only requires that the plurality of treatment plans for selection include a customized plan and a non-customized plan. Customized and non-customized treatment plans are well known in the art. Application at Para. [0004]. A customizable or semi-customizable treatment plan is required to treat high order aberrations, whereas lower order aberrations are treatable with more simple procedures, such as non-customizable treatments. *Id.* at Para. [0037 - 0038]. For example, a customized treatment plan for higher order aberrations adjusts for biodynamic responses of the eye to tissue destruction, compensates for thermal heating effects from laser ablations, etc. *Id.* at Para. [0004]. A non-customizable plan would not adjust for these external factors. *Id.* Because non-customizable treatments are well known in the art, a person of ordinary skill in the art **would not** have to perform undue experimentation to make and use the invention of Claim 26, which merely requires the inclusion of a prior art non-customizable treatment plan. Thus, dependent Claim 26 is enabled and in a condition for allowance.

Dependent Claims 27-31 depend from dependent Claim 26. As such, dependent Claims 27-31 necessarily include all of the limitations of dependent Claim 26. Therefore, dependent claims 27-31 are also enabled on the grounds discussed above in relation to dependent Claim 26.

The Examiner has also taken the position that the Applicants do not teach how a non-customized treatment plan is based on the factors recited in the claims. Claims 27-29 have been amended to more fully and properly claim disclosed embodiments. Specifically, Claim 27 now

recites “wherein the non-customized treatment plan comprises data relating to, at least in part, a non-normalized K-reading value of the patient’s eye.” Claim 28 now recites “wherein the non-customized treatment plan comprises data relating to, at least in part, an aspheric corneal shape factor, Q, of the patient’s eye.” Claim 29 now recites “wherein each of the treatment plans comprises data relating to, at least in part, a prospective residual stroma thickness value.” The Applicants specifically teach that both a customizable and non-customizable treatment plan can include numerous types of data, such as a K-reading, Q-factor, or residual stromal thickness. *Id.* at Para. [0044], [0047]. K-readings, Q-factors, and residual stromal thickness are well known prior art parameters of treatment plans. See *id.* at Para. [0044], [0047]. A person of ordinary skill in the art **would not** have to perform undue experimentation to make and use the inventions of Claims 27-29. Thus, dependent Claims 27-29 are enabled and now in a condition for allowance.

Dependent Claims 30-31 depend from dependent Claim 29. As such, dependent Claims 30-31 necessarily include all the limitations of dependent Claim 29. Therefore, dependent claims 30-31 are also enabled on the grounds discussed above in relation to dependent Claim 29.

### **B. Indefiniteness Rejections**

The Examiner has rejected claims 1-6 and 9-31 as failing to particularly point out and distinctly claim the subject matter of the invention as required under 35 U.S.C. §112. The Applicants respectfully traverse these rejections. The Applicants request the Examiner reconsider and withdraw these rejections in view of the foregoing claim amendments and the reasons stated below.

The Examiner has taken the position Claims 1-6 and 9-31 are indefinite because they do not include a selection step, even though the methods are used to aid in the selection of a treatment plan. Applicants respectfully disagree with the Examiner’s position. The preamble of Claims 1-6 and 9-31 merely recite an intended use or purpose of the claim. See M.P.E.P. 2111.02. Specifically, the preambles recite a method “to **aid** in the selection of a treatment plan” or “**aiding** the selection of a treatment plan.” The Examiner can appreciate that a method of aiding in the selection of a treatment plan is not the same as a method for selecting a treatment plan. The former describes an algorithm which merely provides information that may or may not

be used to select a treatment plan. The latter requires one to select a treatment plan based on the information provided. Applicants are not claiming the latter invention. Thus, Claims 1-6 and 9-31 are in a condition for allowance.

The Examiner has taken the position that Claim 22 is indefinite because it is unclear how the recommendations occur in the step of “automatically recommending to the user a preferred treatment plan.” Claim 22 has been amended to more fully and properly claim a disclosed embodiment. Specifically, Claim 22 now recites “presenting to the user the preferred treatment plan from the plurality of treatment plans.” It is now clear that when the plurality of treatment plans is presented to the user for review, the preferable treatment plan is also presented. See *id.* at [0049]. Thus, Claim 22 is now definite and in a condition for allowance.

The Examiner has taken the position that Claims 27-31 are indefinite because it is unclear how the recited factors influenced the treatment plan. Claims 27-29 have been amended to more fully and properly claim disclosed embodiments. Specifically, Claim 27 now recites “wherein the non-customized treatment plan comprises data relating to, at least in part, a non-normalized K-reading value of the patient’s eye.” Claim 28 now recites “wherein the non-customized treatment plan comprises data relating to, at least in part, an aspheric corneal shape factor, Q, of the patient’s eye.” Claim 29 now recites “wherein each of the treatment plans comprises data relating to, at least in part, a prospective residual stroma thickness value.” It is now clear that the treatment plans of Claims 27-29 include parameters such as a K-reading, Q-factor, or prospective residual stromal thickness. Thus, Claims 27-29 are definite and in a condition for allowance.

Dependent Claims 30-31 depend from dependent Claim 29. As such, dependent Claims 30-31 necessarily include all the limitations of dependent Claim 29. Therefore, dependent claims 30-31 are now definite on the grounds discussed above in relation to dependent Claim 29.

The Examiner has taken the position that Claims 30-31 are indefinite because it is unclear how residual stromal thickness is calculated. Claims 30-31 have been amended to more fully and properly claim disclosed embodiments. Specifically, the Claims recite that residual stromal thickness is calculated or estimated by the re-processing step of independent Claim 6, from which Claims 30-31 depend. It is now clear how residual stromal thickness is calculated. Thus, Claims 30-31 are now definite and in a condition for allowance.

The Examiner has taken the position that dependent Claims 36-39 are indefinite because they reclaim limitations inherent in independent Claim 32. According to the Examiner in the August 17, 2011 telephone interview, dependent Claims 36-37 are indefinite because the Applicants are reclaiming that laser ablation shot file inherent in the treatment plan of Claim 32. The Applicants respectfully disagree. Nevertheless, the Applicants have cancelled dependent Claims 36-37. As to dependent Claims 38-39, the Examiner has withdrawn his indefiniteness rejection of these Claims. Thus, Claims 38-39 are in a condition for allowance.

The Examiner has taken the position that dependent Claims 44-53 are indefinite because it is unclear how they add further structure to the computer or display means of independent Claim 32. Claims 44-53 have been amended to more fully and properly claim disclosed embodiments per the Examiner's suggestion in the August 17, 2011 telephone. Specifically, the claims now recite that the computer or display means are programmed to execute the claimed actions. As such, Claims 44-53 are now definite and in a condition for allowance.

**Claim Rejections under 35 U.S.C. §101, Claims 1-15, 17-18, 21-23, 26-31**

The Examiner has rejected claims 1-15, 17-18, 21-23 and 26-31 under 35 U.S.C. §101 because the claims are directed to non-statutory subject matter. The Applicants respectfully traverse these rejections. The Applicants request the Examiner reconsider and withdraw these rejections in view of the foregoing claim amendments and the reasons stated below.

In response to the Examiner's rejections, Claims 1-2, 4, 6, 7, 10-13, 17-18, 21-23 and 30-31 have been amended to more fully and properly claim disclosed embodiments. Specifically, the claims now include executable software instructions to perform the method steps of the claims. The Applicants claims are now directed to statutory subject matter under *In re Bilski* because the claims include the elements necessary for their performance, i.e., executable software. As such, Claims 1-2, 4, 6, 7, 10-13, 17-18, 21-23 and 30-31 are now in a condition for allowance.

Dependent Claims 3 and 5 depend from independent Claim 1, and dependent Claims 8-9, 14-15 and 26-29 depend from independent Claim 6. As such, these dependent claims necessarily include all the limitations of independent Claims 1 and 6. Therefore, dependent claims 3, 5, 8-9, 14-15 and 26-29 are now allowable over the cited art on the grounds discussed above in relation to independent Claims 1 and 6.

**Claim Rejections under 35 U.S.C. §102, Claims 1-3, 5-17, 21, 24-26, 32-41, 43, 46-48 and 51**

The Examiner has rejected claims 1-3, 5-17, 21, 24-26, 32-41, 43, 46-48 and 51 under 35 U.S.C. §102 as being anticipated by U.S. Patent No. 6,726,680 to Knopp et al. (“Knopp”). The Applicants respectfully traverse these rejections. The Applicants request the Examiner reconsider and withdraw these rejections in view of the foregoing claim amendments and the reasons stated below.

Independent Claims 1, 6 and 32 have been amended to more properly and fully claim disclosed embodiments. Specifically, Claim 1 has been amended to recite “executing fourth software instructions which recommend a preferred treatment plan from the plurality of treatment plans.” Claim 6 has been amended to recite “executing seventh software instructions which recommend a preferred treatment plan from the plurality of treatment plans.” Claim 32 has been amended to recite a “means...for recommending a preferred treatment plan from a plurality of modified treatment plans.” Knopp does not disclose any system or method which selects a plurality of viable treatment algorithms based on diagnostic data, and determines the preferred treatment plan from the respective plurality of viable treatment algorithms.

Knopp discloses a surgical laser treatment system where a computer selects a treatment pattern or patterns based on the input of previously obtained diagnostic information about the patient’s eye. Knopp at col. 10 ll. 61-66. The treatment patterns consist of geometric shapes such as annuli, boxes, arcs, etc. *Id.* at col. 31 ll. 60-63. Furthermore, the treatment patterns are classified according to the type of eye surgery, e.g., cataract surgery, posterior eye segment surgery, etc. *Id.* at col. 32 ll. 4-12. Once treatment patterns are selected, the computer generates a treatment template. *Id.* at col. 32 ll. 12-26. This template can be superimposed onto an image of the patient’s eye. *Id.* at col. 32 ll. 27-33. Furthermore, the treatment template can be modified by reshaping or resizing to accommodate for particular configurations of the patient’s eye. *Id.* at col. 26 ll. 47-66. Once the template is modified, a computer controls a laser to ablate the eye in accordance with the treatment template. *Id.* at col. 26 ll. 26-46.

However, Knopp does not teach a system or method of selecting treatment templates from a set of treatment patterns, wherein a computer system determines the best possible treatment template for the patient. Because Knopp does not teach “executing fourth software

instructions which recommend a preferred treatment plan from the plurality of treatment plans,” “executing seventh software instructions which recommend a preferred treatment plan from the plurality of treatment plans,” nor a “means...for recommending a preferred treatment plan from a plurality of modified treatment plans,” independent Claims 1, 6 and 32 are now in a condition for allowance.

Dependent claims 1-3 and 5 depend from independent claim 1, dependent claims 7-17, 21, and 24-26 depend from independent claim 6, and dependent claims 33-41, 43, 46-48 and 51 depend from independent Claim 32. Therefore, dependent claims 1-3, 5, 7-17, 21, 24-26, 33-41, 43, 46-48 and 51 are now allowable over the cited art on the grounds discussed above in relation to independent claims 1, 6 and 32, and in light of the currently amended claims. The Applicants respectfully request prompt allowance of claims 1-3, 5-17, 21, 24-26, 32-41, 43, 46-48 and 51.

**Claim Rejections under 35 U.S.C. §103, Claims 1-3, 5-17, 21, 24-26, 32-41, 43, 46-48 and 51**

The Examiner has rejected claims 4, 18, 22, 23, 26-31, 42, 44 and 52 under 35 U.S.C. §103 as being obvious over Knopp. The Examiner has also rejected claims 9, 20, 45, 50 and 53 under 35 U.S.C. §103 as being obvious over Knopp in view of U.S. Patent Publication No. 20010041884 to Frey (“Frey”). The Applicants respectfully traverse these rejections. The Applicants request the Examiner reconsider and withdraw these rejections in view of the foregoing claim amendments and the reasons stated below.

Independent Claims 1, 6 and 32 have been amended to more properly and fully claim disclosed embodiments. Specifically, Claim 1 has been amended to recite “executing fourth software instructions which recommend a preferred treatment plan from the plurality of treatment plans.” Claim 6 has been amended to recite “executing seventh software instructions which recommend a preferred treatment plan from the plurality of treatment plans.” Claim 32 has been amended to recite a “means...for recommending a preferred treatment plan from a plurality of modified treatment plans.” Knopp does not disclose any system or method which selects a plurality of viable treatment algorithms based on diagnostic data, and determines the preferred treatment plan from the respective plurality of viable treatment algorithms.

Knopp discloses a surgical laser treatment system where a computer selects a treatment pattern or patterns based on the input of previously obtained diagnostic information about the patient's eye. Knopp at col. 10 ll. 61-66. The treatment patterns consist of geometric shapes such as annuli, boxes, arcs, etc. *Id.* at col. 31 ll. 60-63. Furthermore, the treatment patterns are classified according to the type of eye surgery, e.g., cataract surgery, posterior eye segment surgery, etc. *Id.* at col. 32 ll. 4-12. Once treatment patterns are selected, the computer generates a treatment template. *Id.* at col. 32 ll. 12-26. This template can be superimposed onto an image of the patient's eye. *Id.* at col. 32 ll. 27-33. Furthermore, the treatment template can be modified by reshaping or resizing to accommodate for particular configurations of the patient's eye. *Id.* at col. 26 ll. 47-66. Once the template is modified, a computer controls a laser to ablate the eye in accordance with the treatment template. *Id.* at col. 26 ll. 26-46. However, Knopp does not teach a system or method of selecting treatment templates from a set of treatment patterns, wherein a computer system determines the best possible treatment template for the patient.

Frey teaches a method of ablating optical tissue wherein the measurement of optical path differences is used to provide an optical correction to the laser system. Frey at Abstract. Frey further teaches that patient information can be provided for review via a data screen. *Id.* at Para. [0174]. However, Frey does not teach the generation of treatment patterns based on the input of previously obtained diagnostic information, nor that a computer determines the best possible treatment pattern for the patient.

Finally, the combination of Knopp and Frey does not teach determining the preferred treatment plan. Neither of these references alone teaches or suggests that a computer system determines the best treatment plan for a patient. Thus, the Applicants method and system for aiding in the selection of a treatment plan is not in the prior art cited by the Examiner. Because neither Knopp or Frey, alone or in combination, teaches "executing fourth software instructions which recommend a preferred treatment plan from the plurality of treatment plans," "executing seventh software instructions which recommend a preferred treatment plan from the plurality of treatment plans," nor a "means...for recommending a preferred treatment plan from a plurality of modified treatment plans," independent Claims 1, 6 and 32 are now in a condition for allowance.

Dependent claim 4 depends from independent claim 1, dependent claims 18-20, 22-23, and 26-31 depend from independent claim 6, and dependent claims 42, 44-45, 50 and 52-53



depend from independent Claim 32. Therefore, dependent claims 4, 18-20, 22-23, 26-31, 42, 44-45, 50 and 52-53 are now allowable over the cited art on the grounds discussed above in relation to independent claims 1, 6 and 32, and in light of the currently amended claims. The Applicants respectfully request prompt allowance of claims 4, 18-20, 22-23, 26-31, 42, 44-45, 50 and 52-53.

**CONCLUSION**

For at least the foregoing reasons, all claims in the present application are now in a condition for allowance. Accordingly, the Applicants respectfully request the Examiner reconsider and withdraw all objections/rejections in light of this response and pass this application to allowance. It is believed that no fees are due for the present response. However, if such fees are due or have been underpaid, the Applicants' attorney hereby authorizes deduction of any necessary fees from deposit account number 162435.

The Examiner is respectfully requested to contact the undersigned attorney at the telephone number indicated below regarding any questions which might arise.

Respectfully submitted,

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